



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/759,237

01/20/2004

Norihiko Moriwaki

1213.43382X00

8065

24956

7590

01/21/2009

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.
1800 DIAGONAL ROAD
SUITE 370
ALEXANDRIA, VA 22314

EXAMINER

SAMUEL, DEWANDA A

ART UNIT

PAPER NUMBER

2416

MAIL DATE

DELIVERY MODE

01/21/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/759,237	Applicant(s) MORIWAKI, NORIHIKO	
	Examiner DEWANDA SAMUEL	Art Unit 2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-14 is/are allowed.
- 6) ☒ Claim(s) 1-3,5,7-9,11,15-23 is/are rejected.
- 7) ☒ Claim(s) 4,6,10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is responsive to the communication filed on 11/06/2008
2. **Claims 2-23** are pending.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/12/2008 has been entered.

Claim Objections

4. **Claim 13** is objected to because of the following informalities: The phrase “one or plural functional processors capable of functional processing different from said same functional processing”, the language is awkward and confusing, please clearly define the limitation. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2416

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 2,3,5,8,20-23** are rejected under 35 U.S.C. 102(b) as being anticipated by Sindhu et al. (US Patent 5,905,725).

With regard to claim 2, a packet communication device, comprising:
a plurality of line interfaces capable of reception or transmission of a packet, (**Sindhu et al. disclose having a high speed switching device interpreted as a “communication device”, see title. Sindhu et al. further discloses having a plurality of line input interfaces 300 which is included in a input port 107 cable of reception, see fig. 3 and col. 4 lines 52-55**) ; a plurality of ports to which said plurality of line interfaces are connected (**see fig. 3 and col. 4 lines 52-55, input port 107 and line interface 300**);and to which at least one functional processor to be used to perform functional processing on an incoming packet received by any of said plurality of line interfaces can be connected as needed, (**see fig. 3 and col. 4 lines 52-55, a data handler 304 interpreted as a “functional processor” receiving packets from line input interface 302 and dividing the packets into fixed length cells interpreted as “ functional processing”**) ; a function item judgment unit for judging a function item to be required for said incoming packet, (**see col. 4 lines 40-50, a route look-up engine 110 interpreted as a “function item judgment unit” performs a search on the key information interpreted as a “ function item”**);a forwarding information generator for determining a forwarding port for said incoming packet in accordance with said function item obtained from judging by said function item judgment unit and imparting to said

Art Unit: 2416

incoming packet forwarding information for designating said forwarding port, (**see fig. 3 and col. 4 lines 40-50, a controller 106 interpreted as a “forwarding information generator” returns a result of which output port associated with the destination**) ; and a forwarding path switching unit for switching a forwarding path when forwarding said incoming packet among said plurality of ports based on said forwarding information, (**see fig. 3 col. , (see fig. 3 col. A output switch 102 interpreted as a “forwarding path switching unit” transmitting a packet to a output port 108 according to the result information**) ; wherein when said function item judgment unit has judged that a plurality of functional processing are required for said incoming packet, (**Sindhu et al. discloses having a route look-up engine 110 interpreted as a “function item judgment unit” performs a search on the key information interpreted as a “ function item”**); the plurality of forwarding information corresponding to functional processors capable of executing said required functional processing is imparted to said incoming packets at the forwarding information generator in order to forward said incoming packets successively to a plurality of ports to which the functional processors capable of executing said required functional processing are connected respectively,(**Sindhu et al. discloses having a result that is coupled to other information (source ID, flowID , packet length , etc)** interpreted as “ plurality of forwarding information” corresponding to output switch 102 and output port 108 interpreted as “ plurality of ports”). It is inferred the packet switching system of Sindhu et al. has the functionality of processing incoming packets according to the header information in which informs the

Art Unit: 2416

switching hardware of which port is used.

With regard to claim 3, Sindhu et al. teaches the packet communication device recited in claim 2. wherein in order to forward those incoming packets which have been subjected to said plurality of functional processing to any of said plurality of line interfaces, said forwarding information generator further imparts, to said packet, forwarding information corresponding to a port, to which the said line interface is connected for forwarding said incoming packets, (**Sindhu et al. discloses having a route look-up engine 110 interpreted as a “function item judgment unit” within a controller 106 performs a search on the key information interpreted as a “function item” and attaching a result to other information, see col. 4 lines 40-67**);

With regard to claim 5, Sindhu et al. teaches the packet communication device recited in claim 2 or 3. wherein as said incoming packet is successively forwarded based on said forwarding information, said forwarding information generator further imparts, to said incoming packet, subsequent forwarding information for designating in said forwarding information which information concerning the subsequent forwarding destination is, and wherein said device further comprises: a forwarding information renewal unit for renewing, after said incoming packet is forwarded to a port to be designated in said forwarding information and said subsequent forwarding information, said subsequent forwarding information,(**Sindhu et al. discloses having a route look-up engine 110 interpreted as a “function item judgment unit” within a controller**

Art Unit: 2416

106 performs a search on the key information interpreted as a “ function item” and attaching a result to other information, see col. 4 lines 40-67);

With regard to claim 8, Sindhu et al. teaches the packet communication device recited in claim 2. wherein at least one said functional processor is further provided with said functional judgment processor and said forwarding information generator, (see col. 4 lines 39-50, a controller 106 interpreted as “functional processor” comprise of a route look-up engine 110 interpreted as a “ functional judgment processor and forwarding information generator” returns a result which includes the output port associated with the destination).

With regard to claim 19, Sindhu et al. teaches the packet communication device recited in claim 3. wherein at least one said functional processor is further provided with said functional judgment processor and said forwarding information generator, (see col. 4 lines 39-50, a controller 106 interpreted as “functional processor” comprise of a route look-up engine 110 interpreted as a “ functional judgment processor and forwarding information generator” returns a result which includes the output port associated with the destination).

With regard to claim 20, Sindhu et al. teaches the packet communication device recited in claim 4. wherein at least one said functional processor is further provided with said functional judgment processor and said forwarding information generator, (see col. 4 lines 39-50, a controller 106 interpreted as “functional processor” comprise

Art Unit: 2416

of a route look-up engine 110 interpreted as a “ functional judgment processor and forwarding information generator” returns a result which includes the output port associated with the destination).

With regard to claim 21, Sindhu et al. teaches the packet communication device recited in claim 5, wherein at least one said functional processor is further provided with said functional judgment processor and said forwarding information generator, (**see col. 4 lines 39-50, a controller 106 interpreted as “functional processor” comprise of a route look-up engine 110 interpreted as a “ functional judgment processor and forwarding information generator” returns a result which includes the output port associated with the destination).**

With regard to claim 22, Sindhu et al. teaches the packet communication device recited in claim 6. wherein at least one said functional processor is further provided with said functional judgment processor and said forwarding information generator, (**see col. 4 lines 39-50, a controller 106 interpreted as “functional processor” comprise of a route look-up engine 110 interpreted as a “ functional judgment processor and forwarding information generator” returns a result which includes the output port associated with the destination).**

With regard to claim 23, Sindhu et al. teaches the packet communication device recited in claim 7. wherein at least one said functional processor is further provided with

Art Unit: 2416

said functional judgment processor and said forwarding information generator, (**see col. 4 lines 39-50, a controller 106 interpreted as “functional processor” comprise of a route look-up engine 110 interpreted as a “ functional judgment processor and forwarding information generator” returns a result which includes the output port associated with the destination).**

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 7 and 15-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sindhu et al. (US Patent 5,905,725) as applied to claim 2 above, and further in view of Kim et al. (US Patent 7,394,825).

With regard to claim 7, Sindhu et al. teaches the packet communication device recited in claim 2. wherein said functional judgment unit and said forwarding information generator are installed in at least one of said plurality of line interfaces, **(Kim et al. discloses having a 10-gigabit Ethernet line interface apparatus interpreted as a “line interface” and method of controlling the same , see title. Kim et al. further discloses having Ethernet line interface apparatus 140 checking for a source**

Art Unit: 2416

address and transmit switch labels for a destination network processor interpreted as “forwarding information generator” , see col. 7 lines 24-48). It is inferred the 10-gigabit Ethernet line interface apparatus has the functionality to judge and forward data.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to incorporate Ethernet line interface apparatus which is taught by Kim et al. into Sindhu et al. router providing a more scaled and efficient line interface whereby increasing support for a high volume of data.

With regard to claim 15, Sindhu et al. and teaches the packet communication device recited in claim 3. However, does Sindhu et al. does not explicitly disclose wherein said functional judgment unit and said forwarding information generator are installed in at least one of said plurality of line interfaces, (Kim et al. discloses having a 10-gigabit Ethernet line interface apparatus and method of controlling the same , see title. kim et al. further discloses having Ethernet line interface apparatus 140 checking for a source address and transmit switch labels for a destination network processor interpreted as “forwarding information generator” , see col. 7 lines 24-48). It is inferred the 10-gigabit Ethernet line interface apparatus has the functionality to judge and forward data.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to incorporate Ethernet line interface apparatus which is

Art Unit: 2416

taught by Kim et al. into Sindhu et al. router providing a more scaled and efficient line interface whereby increasing support for a high volume of data.

With regard to claim 16, Sindhu et al. and teaches the packet communication device recited in claim 4. However, does Sindhu et al. does not explicitly disclose wherein said functional judgment unit and said forwarding information generator are installed in at least one of said plurality of line interfaces, **(Kim et al. discloses having a 10-gigabit Ethernet line interface apparatus and method of controlling the same**, see title. Kim et al. further discloses having Ethernet line interface apparatus **140** checking for a source address and transmit switch labels for a destination network processor interpreted as “forwarding information generator” , see col. 7 lines 24-48). It is inferred the 10-gigabit Ethernet line interface apparatus has the functionality to judge and forward data.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to incorporate Ethernet line interface apparatus which is taught by Kim et al. into Sindhu et al. router providing a more scaled and efficient line interface whereby increasing support for a high volume of data.

With regard to claim 17, Sindhu et al. and teaches the packet communication device recited in claim 5. However, does Sindhu et al. does not explicitly disclose wherein said functional judgment unit and said forwarding information generator are

Art Unit: 2416

installed in at least one of said plurality of line interfaces, **(Kim et al. discloses having a 10-gigabit Ethernet line interface apparatus and method of controlling the same**, see title. Kim et al. further discloses having Ethernet line interface apparatus 140 checking for a source address and transmit switch labels for a destination network processor interpreted as “forwarding information generator” , see col. 7 lines 24-48). It is inferred the 10-gigabit Ethernet line interface apparatus has the functionality to judge and forward data.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to incorporate Ethernet line interface apparatus which is taught by Kim et al. into Sindhu et al. router providing a more scaled and efficient line interface whereby increasing support for a high volume of data.

With regard to claim 18, Sindhu et al. and teaches the packet communication device recited in claim 6. However, does Sindhu et al. does not explicitly disclose wherein said functional judgment unit and said forwarding information generator are installed in at least one of said plurality of line interfaces, **(Kim et al. discloses having a 10-gigabit Ethernet line interface apparatus and method of controlling the same**, see title. Kim et al. further discloses having Ethernet line interface apparatus 140 checking for a source address and transmit switch labels for a destination network processor interpreted as “forwarding information generator” , see col. 7

Art Unit: 2416

lines 24-48). It is inferred the 10-gigabit Ethernet line interface apparatus has the functionality to judge and forward data.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to incorporate Ethernet line interface apparatus which is taught by Kim et al. into Sindhu et al. router providing a more scaled and efficient line interface whereby increasing support for a high volume of data.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sindhu et al. (US Patent 5,905,725) in view of Spinney (US patent 5,414,704).

With regard to claim 9, a packet communication device, comprising:
a plurality of line interfaces capable of reception or transmission of a packet, (**Sindu et al. disclose having a high speed switching device interpreted as a “communication device”, see title. Sindhu et al. further discloses having a plurality of line input interfaces 300 which is included in a input port 107 cable of reception, see fig. 3 and col. 4 lines 52-55**) ;one or a plurality of functional processors to be used to perform functional processing on an incoming packet received by any of said plurality of line interfaces, (**see fig. 3 and col. 4 lines 52-55, a data handler 304 interpreted as a “functional processor” receiving packets from line input interface 302 and dividing the packets into fixed length cells interpreted as “ functional processing”**) ; a plurality of ports to which said plurality of line interfaces and said one

Art Unit: 2416

or a plurality functional processors are connected **see fig. 3 and col. 4 lines 52-55, input port 107 and line interface 300**); a function item judgment unit for judging a function item to be required for said incoming packet, (**see col. 4 lines 40-50, a route look-up engine 110 interpreted as a “function item judgment unit” performs a search on the key information interpreted as a “ function item”**); a forwarding information generator for determining a forwarding port for said incoming packet in accordance with said function item obtained by judging by said function item judgment unit, and imparting to said incoming packet forwarding information for designating said forwarding port, (**see fig. 3 and col. 4 lines 40-50, a controller 106 interpreted as a “forwarding information generator” returns a result of which output port associated with the destination**); and a functional processor with a forwarding information generation function for performing functional processing on said incoming packet, determining, as a forwarding port, a port to which any of said plurality of line interfaces is connected based on a result of said functional processing, and imparting to said incoming packet forwarding information corresponding to said forwarding port, **(Sindhu et al. discloses having a result that is coupled to other information (source ID, flowID , packet length , etc) interpreted as “ plurality of forwarding information” corresponding to output switch 102 and output port 108 interpreted as “ plurality of ports”)**. It is inferred the packet switching system of Sindhu et al. has the functionality of processing incoming packets according to the header information in which informs the switching hardware of which port is used)

Art Unit: 2416

However, Sindhu et al. does not discloses when said function item judgment unit has judged that a plurality of functional processing are required for said incoming packet the plurality of forwarding information corresponding to functional processors capable of executing said required functional processing is imparted to said incoming packet at the forwarding information generator in order to forward said incoming packet successively to a plurality of ports to which the functional processors capable of executing said required functional processing are connected respectively, **(Spinney discloses having a address lookup in packet data communications link using hashing and content-addressable memory, see title. Spinney further discloses having a controller 10 interpreted as a “judgement unit” detecting an destination address interpreted as “ forwarding information” from a packet ,(see col. 5 lines 16-28), the controller 10 executes six independent processes interpreted as “ functional processors” , see col. 5 lines 60-67. Spinney further discloses having a IR process 27 using a lookup result interpreted as " forwarding information generator" for forwarding a packet to a crossbar 12 which comprise of port connections, see col. 6 lines 14-49).**

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to incorporate a data processing mechanism which is taught by Spinney into Sindhu's et al. router providing a efficient multiple processing staegs whereby increasing processing speed on high volume of data.

Allowable Subject Matter

10. Claims 4,6,10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 12-14 are allow over prior art.

Prior Art

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ellis et al. (PG Pub 2002/0126671)

Rhoades et al. (PG PUB 2003/0041163).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEWANDA SAMUEL whose telephone number is (571)270-1213. The examiner can normally be reached on Monday- Thursday 8:30-5:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q. Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2416

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ricky Ngo/
Supervisory Patent Examiner, Art
Unit 2416

/DeWanda Samuel/
Examiner, Art Unit 2416
1/21/2009